

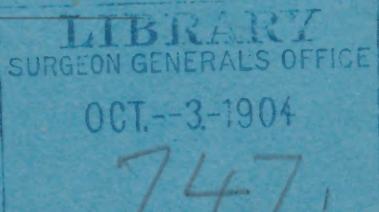
FENGER (C.)

THE VAGINAL OPERATION
IN
EXTRA-UTERINE PREGNANCY.

BY
CHRISTIAN FENGER, M.D.,

Professor of Clinical Surgery, College of Physicians and Surgeons and Chicago Poly-
clinic; Surgeon to Cook County Emergency and the German Hospitals, etc.,
Chicago.

[Reprinted from the AMERICAN JOURNAL OF OBSTETRICS AND DISEASES
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THE VAGINAL OPERATION

IN

EXTRA-UTERINE PREGNANCY.¹

Introduction.—Having been invited by the President of the Chicago Gynecological Society to take part in the discussion upon the question of the treatment of extra-uterine pregnancy at or near term, and having for my associates in the discussion the President himself and Professor Parkes, I have chosen, as the part of the entire subject for my consideration, the vaginal operation, elytrotomy, as applied to extra-uterine pregnancy. I have made this choice because, three years ago, I met with a case of this kind and resorted to the vaginal method of operation, because at that time I considered it to be the one indicated under the circumstances. I shall first relate the case, and afterward bring the question of this method of operating, as it now presents itself to me, before the Society for consideration and discussion.

I am very much indebted to Dr. William Mackie, of Milwaukee, Wisconsin, for the notes of the following case, as well as for his extremely able management of the after-treatment. Dangerous and troublesome as this always is, I consider the success due only to his unremitting care and attention. The case was operated upon in Milwaukee during the absence in Europe of Dr. Senn, who, on his departure, requested me to operate on the patient.

¹ Read before the Chicago Gynecological Society December 19th, 1890.

J. X., 28 years of age, unmarried, had a single intercourse (her voluntary statement) in March, 1886. A month later she experienced dragging pains in the right iliac region. She menstruated regularly until June, 1886, after which menstruation ceased until November 25th. In June she first noticed an enlargement on the right side of the abdomen, which gradually increased in size, the increase being unaccompanied by pain. In November some hemorrhage appeared, which she supposed to be her regular menstruation. It was not periodical, however, as a slight hemorrhagic discharge persisted until the following March. The amount of hemorrhage varied, usually increasing after exercise.

In November, 1886, she first consulted a physician, who diagnosed a fibro-cystic tumor and advised her to enter a hospital. She entered St. Mary's Hospital, Milwaukee, and was under treatment there until the end of January, 1887. During this time the vaginal discharge resisted all treatment, but the tumor did not increase in size. If there was any change, it seemed rather to decrease.

On January 31st, 1887, she was admitted to the Milwaukee Hospital. On examination her condition was found to be as follows: A tumor occupied the abdomen, which, on inspection, appeared to be most prominent to the left of the median line. On palpation the outlines of the fetus could be distinctly felt through the abdominal parietes. The head of the fetus lay in the left iliac fossa, and the body was inclined upward obliquely to the right. On vaginal examination the uterus was found displaced upward and to the right. Douglas' fossa and the posterior lacuna were pressed downward into the vagina, most prominently on the left side, where, through the thin, distended walls, the fetal head could be felt and the posterior fontanelle distinctly made out. Auscultation failed to detect any fetal heart sound, but the placental souffle could be heard over the abdomen most distinctly at a point three inches below the level of the umbilicus and a little to the left of the median line.

The patient had no idea that she was pregnant, and denied, or would not admit, ever having felt any fetal movements. In this respect the patient's statement may be considered perfectly reliable.

About the end of February she had an attack of chicken-pox. On March 2d the vaginal discharge ceased, and on March 6th the placental souffle was inaudible.

On March 13th, 1887, the external genitals having been shaved and thoroughly disinfected, antiseptic injections having been applied to disinfect the vagina, liquid diet and cathartics having been given for several days, together with an enema on the morning of operation, with the able assistance of Dr. Mackie, and in the presence of the members of the German Medical Society of Milwaukee,¹ I operated in the following manner :²

The patient was anesthetized and placed in the lithotomy position. After a median incision through the perineum to enlarge the field of operation, the vagina was distended by Simon's retractors, the left index finger in the rectum marking out the extent to which the tumor was covered by the rectal wall, and a transverse incision made in the posterior lacuna above this point by the knife of a Paquelin cautery. Upon entering the cavity a moderate amount of almost clear, sero-sanguinolent fluid escaped, and the head of the fetus presented in the opening. The opening was dilated transversely as far as it was deemed safe, but it was soon ascertained that it would be impossible to deliver the fetus through an opening of this size. I therefore performed craniotomy, and, after emptying the brain substance, introduced a biconcave cranioclast and extracted the head, guided by two fingers of the left hand, slowly and with some difficulty, it being necessary to cut away with bone scissors portions of the cranial bones as they presented in the opening. The delivery of the remainder of the body was comparatively easy.

The umbilical cord was ligated as a precautionary measure, pulsation being absent. The fetal sac was thoroughly irrigated with boracic acid solution. Gentle digital exploration of the sac showed that the placenta was attached high up in

¹ Verein Deutscher Aerzte aus Milwaukee.

² Dr. Bayard Holmes, of Chicago, accompanied me with some culture substances, with a view to the investigation of the existence of microbes in the fetal sac and the organs of the fetus. A report of these very careful and valuable investigations was read about two years ago by Dr. Holmes before this Society.

the left iliac fossa, that it was apparently of normal size and still adherent all over.

Two large rubber drainage tubes, three-quarters of an inch in diameter, were introduced into the cavity and surrounded by a packing of sterilized gauze thickly dusted over with salicylic acid to which had been added some tannic acid. The vagina was also filled with this packing. The drainage tubes extended to the introitus vaginæ, over which a large antiseptic gauze and salicylated cotton dressing was applied.

At the close of the operation the patient was somewhat collapsed, but toward evening she rallied. Pulse 160 and feeble; temperature 100.5°.

March 14th to 16th: Temperature from 99° to 102.5°; pulse 108 to 120. March 16th the gauze tampon was removed from the vagina and cyst. The discharge had then become fetid. The rubber drains were replaced by glass drainage tubes. Evening temperature 103°. After one hour of irrigation with saturated solution of boracic acid, ordered by Dr. Mackie, the temperature fell one degree. A similar irrigation was repeated every three or four hours. On March 17th the discharge was very fetid and sanguinolent, and contained many shreds of broken-down tissue.

March 18th: Discharge coffee-colored, containing much placental débris. Evening temperature 102°; pulse 134. Alternate hourly irrigation with boracic acid and two and one-half per cent carbolic acid solution ordered.

March 19th: The urine was cloudy and of a greenish hue, indicating the presence of carbolic acid. After this a two-per-cent solution of acetate of aluminium was substituted for the irrigations with carbolic acid solution. On digital exploration Dr. Mackie found that most of the placenta was still firmly adherent.

March 24th, eleventh day: Morning temperature normal. A small portion of the placenta came away with the irrigating fluid. March 30th, seventeenth day, the placenta was found to be free at the margins, and Dr. Mackie broke it up with the finger and completely removed it. The placenta, as removed, consisted of edematous connective tissue containing numerous calcareous particles. Many of the blood vessels were also undergoing calcareous degeneration. On the fol-

lowing, the eighteenth day, all the fetid odor had disappeared from the discharge, and a week later the patient was allowed to get out of bed.

On May 25th menstruation reappeared. July 14th the patient was discharged from the hospital. On vaginal examination the uterus was found to be of normal size, but firmly adherent to the left side of the pelvis.

The child was a fully developed fetus at term, and presented no further signs of decomposition than local desquamation of the epidermis and a slightly grayish color of the skin, indicating beginning aseptic maceration. It was still in many places covered with smegma. All the organs were apparently of normal development. It had no odor whatever, and, as Dr. Holmes' bacteriological investigations proved, was in a perfectly aseptic condition.

The later fate of the patient Dr. Mackie has kindly ascertained for me, and reported as follows: About the end of April, 1887, during the convalescence after the operation, symptoms of commencing pulmonary tuberculosis, an apex catarrh, were discovered by Dr. Mackie. The disease progressed gradually into pulmonary consumption, of which the patient died a year ago, that is, two and a half years after the operation.

Remarks.—As to the duration of pregnancy before the operation in this case, it must have varied between ten and twelve months. If we take the single coitus as the point of departure, the period would be twelve months; if we take the last regular menstruation, it would be ten months. As no fetal heart sound was heard at any time, it is impossible to ascertain the exact time of the death of the fetus. The indications of development of the fetus to full term, however, would make it likely that death occurred in the eighth or ninth month.

At the time when I first saw the patient, in January, 1887, the symptoms were not urgent, and I consequently considered that I had the choice of the time in operation. In this regard I resolved to follow the advice of Litzmann, namely, to postpone operating in cases where the child is dead, and where, consequently, the life of the child does not have to be taken into consideration, until a time when we may be sure

of the cessation of placental circulation. As to this question, it was necessary to take into consideration how long after the death of the fetus we might expect the placental circulation to continue. Werth gives this time as ten to twelve weeks; Litzmann, as five to six months. Schroeder saw a case in which there was hemorrhage from the placenta in an operation performed nine weeks after the death of the fetus.

As in my case it was impossible to know the exact time of the death of the fetus, and as there was a symptom present—namely, the placental souffle—which I considered indicative of placental circulation, I resolved to wait until this bruit had ceased, and operate a week later. As seen from the history, there was a slight hemorrhage at the time of the spontaneous detachment of the placenta. The placental circulation, as indicated by the souffle, lasted for at least five weeks after the death of the fetus. The operation was thus performed one week after the supposed cessation of fetal circulation, at a period when as yet no symptoms of fermentative intoxication or sepsis had appeared.

There is one other feature in the symptoms of the case to which I wish to call attention—the fact that the patient was a young primipara. It is usually stated that we most commonly meet with extra-uterine pregnancy either in old primiparæ, or in multiparæ where a long period of sterility has elapsed after the birth of the last child—five to ten years or more. The patients then unexpectedly recognize the symptoms of pregnancy from the experience of former years, or find the symptoms of the present condition so different that they hardly believe in the possibility of pregnancy. The difficulty of an early diagnosis is naturally much greater in primiparæ.

I will briefly mention in this place another case of extra-uterine pregnancy in a young primipara, which I have recently seen: Mrs. R. S., of Chicago, 26 years of age, always in good health. She menstruated first at 13, and was always regular, and continued so after her marriage four years ago. She had never been pregnant. In February, 1890, menstruation ceased. About the middle of March she had an attack of pain low down in the pelvis which lasted a few days. In April a similar attack of pain in the region of Douglas' fossa

(involuntary statement by the patient during exploration) was accompanied by the passage of what she considered to be a clot of blood, by pain and vomiting, which confined her to bed for a week. In May she went into the country. At this time the abdomen had already commenced to enlarge. In June she had a severe attack of abdominal pain and vomiting which confined her to her bed and room for several weeks. After this time the abdomen grew larger and fetal movements were felt almost daily. In September an almost constant bloody discharge occurred from the uterus. In November normal labor was expected, and by the end of the month labor pains came on, but ceased after about a week. Examination in narcosis revealed a condition which led to the diagnosis of extra-uterine pregnancy, and expectant treatment was advised.

I was called in by the patient to verify the diagnosis and found the following condition: Patient healthy, well nourished, with pigmented areolæ in the well-developed mammae; colostrum could be pressed out of both nipples. The abdomen was un-uniformly enlarged, a round prominence being seen below and to the right of the umbilicus, extending from this point downward and to the left, filling both iliac fossæ, the left iliac fossa being much less prominent than the right umbilical region. The linea alba was dark brown from pigmentation.

The tumor was semi-solid, elastic, non-fluctuating. No fetal heart sound could be heard, but a distinct placental bruit or souffle could be heard in a round area, four inches in diameter, from an inch below the umbilicus toward the symphysis, the larger half of the area being situated to the left of the median line. No bruit was heard over the remainder of the tumor.

Vaginal exploration showed the vaginal walls to be soft, the vaginal portion of the uterus high up, pushed forward behind and somewhat to the left of the symphysis, soft and voluminous. The fetal head could be felt in Douglas' cul-de-sac as a solid round tumor, not very deep down in the pelvis, and somewhat movable when pressure was made with the other hand over the abdomen. The patient states that from the time of the examination under anesthesia, five weeks ago,

fetal movements ceased entirely and the abdominal tumor noticeably decreased in size.

Diagnosis.—Extra-uterine pregnancy; death of child five weeks ago; absorption of amniotic fluid. Position of child: Head in left iliac fossa, face towards the sacrum; dorsal side of child toward the abdominal wall; breech in right iliac fossa, near the umbilicus, below and to the right of the latter. Placenta attached to anterior abdominal wall below the umbilicus. Pulse 80; evening temperature 100°. I advised, as the placental circulation was yet present, as evidenced by the distinct souffle, and as the child was dead, to wait until the cessation of placental circulation before abdominal section, unless in the meantime alarming symptoms should occur.

The course of the case first reported, after the operation, was by no means peaceful, as symptoms of severe sepsis, from which the patient barely escaped with her life, made recovery uncertain for some time and necessitated energetic antiseptic irrigation to such an extent as to make the after-treatment an exceedingly trying task.

I call especial attention to this point, as I consider it one of the great drawbacks inherent to the vaginal operation.

Remarks.—In the following remarks I shall endeavor to review, as far as the literature at my disposal enables me, the question of the indications for, and the advisability of, the vaginal operation in extra-uterine pregnancy, and its relation to laparotomy for the same condition.

I. *Anatomical Conditions Calling for or Making Possible the Vaginal Operation.*—The vaginal operation is to be considered only when the sac or fetus is located so deeply in the recto-uterine fossa that it pushes the walls of this region downward so as to form a prominent tumor in the posterior wall of the vagina. Further, as stated by Herman, through this vaginal wall, made thin by pressure atrophy, the head of the fetus, which can be recognized by the sutures and fontanelles, the breech or the feet should be felt, so as to make extraction possible without turning. If the softness of the protruding tumor in this place makes it likely that the placenta is here attached and placed between the vaginal wall and the fetus, the vaginal operation should not be done because of the

danger of hemorrhage when the incision is made through the placenta.

II. *Frequency of this Location of the Fetal Sac.*—It is generally stated to be a rare occurrence. If we look at Nature's way of expelling an extra-uterine fetus, or the spontaneous evacuation when left to take its course, we might be deceived. An extra-uterine fetal sac, when the seat of suppuration—that is, when it has become an abscess—will travel on its way to spontaneous opening in the direction of least resistance. The intestinal wall is the place of least resistance; thus elimination through the rectum is common.

Hecker (Bandl) found the fetus expelled through the rectum in twenty-eight out of one hundred and thirty-two—that is, in twenty per cent of extra-uterine pregnancies. This frequency, however, does not indicate that the sac was always located deep down in Douglas' fossa, as the opening into the intestinal canal might be located high up above the rectum in almost any part of the tract.

It is more safe to draw conclusions from the frequency of spontaneous opening into the vagina or from the number of vaginal operations on record. The frequency of vaginal operations is given by Hecker as three out of twenty-six, by T. Gaillard Thomas as three out of thirty; that is, respectively, in twelve and ten per cent of the cases.

Spontaneous evacuation through the vagina is rare. Ernest Herman, in his most excellent and scholarly paper on the subject of the vaginal operation, read in the Obstetrical Society of London in 1887, was able to collect from the literature only four cases (Schmitt, Santini, Charleton, and Lusk). To this may be added a case reported by Werth, making, up to date, five cases in all.

An abscess cavity low down in Douglas' fossa is likely to open into the rectum, as is so well known from hematoccles and peri-uterine abscesses. Perforations low down in the rectum have been recently reported by Tuttle, of New York, and Autoriello, of Naples, in which the fetal sac could easily be explored and treated through the opening in the rectum immediately above the anus.

From the above considerations we may conclude that, in about ten per cent of the cases of extra-uterine pregnancy, the

location is so low down as to make the vaginal operation possible.

III. *Prognosis of the Vaginal Operation.*—About fifty years ago Campbell stated that elytrotomy gave a better prognosis for the mother than laparatomy. In nine cases of vaginal operation there were five living mothers and four living children, a maternal mortality of forty-four per cent. At this time laparatomy with living or recently dead children had a maternal mortality of one hundred per cent, as in the nine cases cited by Campbell all the mothers died.

We shall now consider for a moment the respective mortality of the two operations as they have developed from that time until now. Laparatomy, with a mortality of one hundred per cent in 1841 (Campbell), will be shown to have progressively a much better prognosis the nearer we come to the present time. In 1880 Litzmann gave a series of forty-three cases with twenty-three maternal deaths, a mortality of fifty-three per cent. His statistics in detail are: Ten laparatomies with living children, nine deaths, or ninety per cent; thirty-three laparatomies with dead children, of which ten were performed one to five weeks after the death of the child, with eight deaths, or eighty per cent, and twenty-three performed from six weeks to a year after the death of the child, with only six deaths, or twenty-six per cent.

The low mortality of the last series caused Litzmann to advise earnestly against operation late in pregnancy, after the death of the child, until a sufficient time had elapsed to insure cessation of the placental circulation, provided that no urgent symptoms, suppuration or peritonitis, made immediate action imperative.

In 1889 Leopold Meyer, of Copenhagen, in his most excellent annual compilation and summary, collected from the literature the operations of the previous year, 1888, twenty-four laparatomies, with eight maternal deaths, or thirty-three per cent. The same author in his summary in 1890 gives the laparatomies for 1889 as thirty-five, with six maternal deaths; that is, a mortality from all laparatomies late in pregnancy of only seventeen per cent.

It will thus be seen that laparatomy for extra-uterine pregnancy at or near term, irrespective of the condition of the

placenta and child, has had the enormous decrease in maternal mortality from about one hundred per cent in 1841 to seventeen per cent in 1889. This is in conformity with the modern prognosis of laparotomy for other causes, and is, of course, due almost entirely to asepsis in the operation and after-treatment, to better technique, and to clearer indications for the operation.

If we look for similar progress in the prognosis of the vaginal operation, we will find a vast difference between the latter and laparotomy. In 1887 Herman collected from the entire literature twelve operations in which the child was developed to full term, with seven maternal deaths, or fifty-eight per cent.¹ To these twelve cases I have added one published by Godson and my own case, in both of which the mother recovered. This makes in all fourteen cases, with seven deaths, a mortality of fifty per cent, in cases uncomplicated by any perforation of the fetal sac.

In cases in which spontaneous perforation had taken place into the vagina or rectum, and this condition necessitated immediate vaginal operation, the prognosis, as might be expected, was aggravated by septic invasion into the sac. In four cases collected by Herman three mothers died. In a case reported by Charles, of Liège, where perforation into the intestines had taken place, the mother also died. This makes a total of five cases, with four maternal deaths, a mortality of eighty per cent.

We will, in conclusion, exclude the last-named class of case: from the comparative prognosis between the vaginal operation and laparotomy.

It will thus be seen that the vaginal operation, even at this date, has a mortality of nearly fifty per cent, laparotomy a mortality of seventeen per cent. These statistics speak strongly in favor of the substitution of laparotomy for the vaginal operation in all cases.

IV. *Dangers of the Vaginal Operation.* 1. *Hemorrhage.*—In operating through the vagina for any disease in the pelvic organs, there is always considerable difficulty in

¹ I eliminate from this consideration the cases in which the fetus had died at or before six months, as the delivery of a small fetus is easier, and consequently less dangerous, than that of a full-grown child.

controlling hemorrhage, because the field of operation is narrow, and it is difficult, or even impossible, to secure bleeding vessels if they cannot be brought down into easy reach near the introitus of the vagina.

In extra-uterine pregnancy where the placenta is the source of hemorrhage, it is entirely out of reach in the vaginal operation, and any attempt at local arrest of hemorrhage is therefore impossible. Severe hemorrhage was noted in four out of the fourteen cases, and was the immediate cause of death in two cases (Rupin and Lawson Tait). In three cases the placenta was removed during the operation (Lawson Tait, Bandl, Mathiesen). In one case (Rupin) the placenta was left intact. In the remaining ten cases there was only slight or unimportant hemorrhage. In nine of these cases the placenta was not touched, and in one of these (Chauvenet) it never came away. In the tenth case (Agnew) it lay loose in the cavity and was readily extracted.

Thus it is advisable, in the vaginal operation, that the placenta should be left as far as possible undisturbed, to come away by spontaneous detachment, as Litzmann has advised in the abdominal operation.

Hemorrhage from the placenta is, as we should expect, often seen when the vaginal operation has been performed in the early stages of pregnancy. From Herman's statistics we find three vaginal operations before rupture of the sac (Thomas, Harrison, O'Hara), with two recoveries and one death. In one of these cases (Thomas) severe hemorrhage was brought on by traction on the cord. In O'Hara's case the placenta was divided by an incision and peeled out without much hemorrhage.

In four operations soon after rupture of the sac (Simpson, Lewers, Goelet—cited from Herman—Bernays), with four recoveries, there was severe hemorrhage in two cases (Simpson and Lewers). In the latter case an attempt was made to remove the placenta ten days after the operation, which brought on severe hemorrhage. In two of these four cases the placenta was removed without hemorrhage.

2. *Retention of the placenta* is likely to cause intoxication from decomposition. It is therefore important to know when we may expect the placenta to come away. In the cases

recorded the placenta came away on the second day in one case (Hancock), on the sixth day in one case (Godson), on the sixteenth day in one case (Herman), and on the seventeenth day in one case, my own. In the two latter cases the decomposing placenta caused considerable intoxication and fetid discharge, the fœtor ceasing promptly after the spontaneous removal of the placenta.

3. *Delivery of the child through the vaginal opening* is often difficult and sometimes impossible in cases near, at, or after full term. To the fourteen cases cited we must add three cases in Herman's series in which spontaneous opening had taken place, and deduct the cases of Lusk, Edis, Caignan, and Rupin, because the fetus died in these cases at about the sixth month, and was easily extracted—making a total of thirteen cases with full-grown children to be considered, as follows :

(a) *Delivery was impossible* in two cases, and the patients died with the children in the sacs (Smith). Charleton turned, but was unable to deliver the child.

(b) *Craniotomy or Cephalotripsy* was necessary in four cases (Norman, Herman, Godson, and my own), with two recoveries and two deaths (in Godson's case the thorax was also perforated).

(c) *Delivery by turning* is especially dangerous in extra-uterine pregnancy, as the sac walls are so thin that they will almost always rupture during the manipulations. In the two cases reported (Santini and Bandl) both mothers died.

(d) *Forceps delivery*. Three cases are reported (King, Hancock, and Mathiesen), all of which recovered.

(e) *Delivery by simple extraction*. In only three cases was delivery by extraction easy : Chauvenet's, whose patient lived; Lawson Tait's, whose patient died from hemorrhage; and Agnew's, whose patient is reported to have died from poisoning by permanganate of potassium.

It will thus be seen that the delivery of the child developed to full term, through a vaginal incision, was easy only in three cases, and that more or less difficulty was present in eleven cases. The difficulty of delivery would be a strong argument against the vaginal operation, especially against turning, which is probably always fatal, as Herman has pointed out. We

should agree with Herman's seventh conclusion, that if the child cannot be delivered by the vagina without being turned—that is, when the head, breech, or feet do not present—vaginal section is absolutely contra-indicated.

4. *Sepsis*. It is probably absolutely impossible to keep a fetal sac which communicates with the vagina free from sepsis by any surgical precautions as yet known. Drainage, combined with packing with gauze impregnated by iodoform or salicylic acid, or a mixture of salicylic and tannic acid (Werth), has proved utterly insufficient to secure an aseptic course. Although sepsis was not mentioned in all the cases of unruptured sac, we find that in five (Hancock, Mathiesen, Godson, Herman, and my own) of the seven cases which recovered, frequent daily or even hourly irrigations with antiseptic fluids, such as Condy's fluid, iodine water, carbolic acid solution, and boracic acid, were resorted to, thus indicating strongly that a more or less grave sepsis was present.

In the seven cases of death there were two from peritonitis (Bandl and Norman); two from sepsis (Edis and Caignan); and in the remaining three cases in which death occurred from hemorrhage or poisoning, sepsis is, of course, not excluded.

In the rare instances where there is no sac, and the fetus consequently lies freely movable among the intestines—as in King's case, which recovered, and in which the intestines protruded on the third day; and in Lawson Tait's case, which died from hemorrhage, and in which the intestines protruded immediately after extraction of the fetus—it is possible that we would meet with similarly favorable circumstances for the immediate closure of the abdominal cavity as we find after vaginal extirpation of the uterus, when a simple iodoform gauze drain is sufficient to procure an aseptic course from the immediate closure of the abdominal cavity. This, however, is a rare condition, and in a great majority of cases we have to deal with the fetal sac, which must necessarily be infected through the vaginal opening, and the patient thereby exposed to an intoxication or sepsis which is beyond control and the outcome of which is at least uncertain.

V. *Vaginal Operation for Suppurating Fetal Cavities*.—When the fetal sac has been transformed by suppuration into

an abscess cavity, and disintegration of the soft parts of the fetus has partially or entirely destroyed them, leaving finally only the bones, the conditions are much more favorable, and the treatment has the same indications and prognosis as in abscess cavities in the small pelvis of any other origin.

In eleven cases cited by Herman there were nine recoveries and only two deaths. In this class of cases the vaginal operation is strongly indicated and is preferable to laparotomy. Where the abscess presents in the posterior cul-de-sac there is, comparatively speaking, no difficulty in delivering through a small vaginal opening, and no danger of infection to the peritoneal cavity, which might easily be exposed to sepsis by a laparotomy for this condition.

Vaginal operation early in pregnancy, although not included in the consideration of this discussion, I shall mention in a very few words. It is to-day uniformly condemned by all authorities. Herman has collected six cases, to which may be added a case reported by Bernays, making seven in all. Three of these were operated upon before rupture of the fetal sac, with two recoveries and one death; and four operated upon at the time of, or soon after, rupture, all of which recovered. Although the mortality in these cases was only fourteen per cent, dangerous symptoms of sepsis, requiring frequent antiseptic irrigation, were present in five of the seven cases (Thomas, Harrison, O'Hara, Goelet, and Bernays), in one of which (O'Hara's) fatal peritonitis occurred.

However, a retro-uterine hematocoele may have had its origin in the rupture of a fetal sac, and a vaginal incision has in a few cases revealed a small fetus as the proof of such an origin. In an instance of this kind in which a thorough diagnosis cannot be made, the vaginal incision is to be regarded as being made for a retro-uterine hematocoele rather than for an extra-uterine pregnancy.

In all cases where a diagnosis of extra-uterine gestation early in pregnancy can be made before the time of rupture of the sac, the vaginal operation should never be resorted to, inasmuch as total extirpation of the fetal sac and tube cannot be accomplished by vaginal incision. When the diagnosis is made after rupture of the sac, and operation becomes necessary, the vaginal operation is also out of the question, for the

following two reasons: The seat of hemorrhage, the ruptured Fallopian tube, cannot be reached and treated properly, nor can the accumulated blood in the abdominal cavity be properly evacuated. Thus hemorrhage and sepsis cannot be guarded against. Abdominal section is in such cases the only rational and safe way of operating, as all the necessary indications can be complied with by this method.

To return to the subject of to-night, "The Anatomy and Treatment of Extra-uterine Pregnancy at or near Term," I desire to present in regard to the vaginal operation the following

CONCLUSIONS.

1. In cases where the fetal cavity is still aseptic, the vaginal operation exposes the patient to danger of sepsis in the fetal sac which cannot be guarded against. Abdominal section gives far better means of protection against septic infection.

2. Hemorrhage from the placenta cannot be controlled by the vaginal operation. By abdominal section, on the other hand, ligation of the internal spermatic and uterine arteries, as devised by Olshausen, might in some cases be accomplished as a means of checking hemorrhage from the site of a removed placenta, in the territory supplied by these vessels. Abdominal section further permits of ligature *en masse* of the bleeding portions when the placenta has been divided at the place of incision.

3. Delivery of the child at full term is usually difficult, and thus dangerous to the mother, by the vaginal operation, but easy by the abdominal operation.

4. If the fate of the child is to be considered, the vaginal operation must be abandoned and replaced by abdominal section.

5. When suppuration has set in, in an extra-uterine pregnancy presenting low down in the small pelvis, and the placental circulation has ceased, the vaginal operation may be considered in comparison with the abdominal operation.

6. The vaginal operation is strongly indicated in old suppurating fetal sacs, with disintegrated fetus presenting in the vagina.

Final Remarks.—The vaginal operation is condemned by a

number of modern authors, among whom may be mentioned Werth, Olshausen, Lawson Tait, Thornton, and others. At the Gynecological Congress at Freiburg in June, 1889, Olshausen condemned the vaginal operation, as well as drainage into the vagina after laparotomy in such cases.

As an advocate of the vaginal operation Landau stands isolated. He stated that he had performed thirteen vaginal operations and lost only one mother. As his cases have not been published in detail, this material is not available for consideration here, and can have no influence on the conclusions above stated.

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